

HANDBOOK OF
MAINTENANCE INSTRUCTIONS
for
RADIO RECEIVERS
BC-1066-A and BC-1066-B

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TABLE OF CONTENTS

Section	Page	Section	Page
Destruction of Abandoned Materiel in the Combat Zone	ii	III THEORY OF OPERATION	3-1—3-2
Unsatisfactory Report	ii	1. General	3-1
I GENERAL DESCRIPTION	1-1—1-3	2. Detailed Functioning of Parts	3-1
1. General	1-1	a. Radio Receiver BC-1066-B	3-1
2. Equipment Supplied	1-2	b. Radio Receiver BC-1066-A	3-2
3. Equipment Required But Not Supplied	1-3	IV MAINTENANCE	4-0—4-6
4. Description of Major Assembly	1-3	1. Monthly Inspection	4-0
II OPERATION AND ADJUSTMENT	2-1—2-3	2. Trouble Shooting	4-5
1. Unpacking the Equipment	2-1	a. General	4-5
2. Installation of Batteries	2-1	b. Trouble Chart	4-5
3. Starting and Stopping the Equipment	2-1	c. Voltage and Resistance Measurements.....	4-5
4. Preoperational Tests	2-1	3. Replacement of Vacuum Tubes and Pilot Lamps	4-5
a. Preliminary Quick Check of Equipment	2-1	4. Receiver Calibration	4-5
b. Test for Band Coverage Using Signal Generator	2-1	a. Preliminary Procedure	4-5
5. Adjustment of Receiver Frequency	2-2	b. I Band Calibration	4-5
6. Tuning a Transmitter to a Given Frequency Using Radio Receiver BC-1066-A or BC-1066-B.	2-2	c. G Band Calibration	4-6
7. Check for Blocking of IFF Equipment	2-2	V SUPPLEMENTARY DATA	5-0
		1. Frequency Meter BC-906-C, BC-906-D and Signal Generator I-196-A or I-196-B	5-0
		2. Tube Complement	5-0
		3. Pilot Lamp Complement	5-0
		VI PARTS CATALOG	6-1—6-8
		VII DRAWINGS	7-1—7-10



LIST OF ILLUSTRATIONS

Figure	Page	Figure	Page
1-1. Radio Receiver BC-1066-A or BC-1066-B	1-1	7-1. Radio Receiver BC-1066-A—Top Rear View, Identification of Parts	7-2
1-2. Radio Receiver BC-1066-A or BC-1066-B— Front Panel View	1-2	7-2. Radio Receiver BC-1066A—Bottom Rear View, Identification of Parts	7-3
4-1. Radio Receiver BC-1066-B—Top Rear View, Voltage Diagram	4-1	7-3. Radio Receiver BC-1066-B—Top Rear View, Identification of Parts	7-4
4-2. Radio Receiver BC-1066-B—Bottom Rear View, Voltage Diagram	4-2	7-4. Radio Receiver BC-1066-B—Bottom Rear View, Identification of Parts	7-5
4-3. Radio Receiver BC-1066-B—Top Rear View, Resistance Diagram	4-3	7-5. Radio Receiver BC-1066-A—Schematic Diagram	7-7—7-8
4-4. Radio Receiver BC-1066-B—Bottom Rear View, Resistance Diagram	4-4	7-6. Radio Receiver BC-1066-B—Schematic Diagram	7-9—7-10

Destruction of Abandoned Materiel in the Combat Zone

In case it should become necessary to prevent the capture of this equipment and when ordered to do so, DESTROY IT SO THAT NO PART OF IT CAN BE SALVAGED, RECOGNIZED, OR USED BY THE ENEMY. BURN ALL PAPERS AND BOOKS.

Means:-

1. Explosives, when provided.
2. Hammers, axes, sledges, machetes, or whatever heavy object is readily available.
3. Burning by means of incendiaries such as gasoline, oil, paper, or wood.
4. Grenades and shots from available arms.
5. Burying all debris or disposing of it in streams or other bodies of water, where possible and when time permits.

Procedure:-

1. Obliterate all identifying marks. Destroy nameplates and circuit labels.
2. Demolish all panels, castings, switch- and instrument-boards.
3. Destroy all controls, switches, relays, connections, and meters.
4. Rip out all wiring and cut interconnections of electrical equipment. Smash gas, oil, and water-cooling systems in gas-engine generators, etc.
5. Smash every electrical or mechanical part, whether rotating, moving, or fixed.
6. Break up all operating instruments such as keys, phones, microphones, etc.
7. Destroy all classes of carrying cases, straps, containers, etc.
8. Bury or scatter all debris.

DESTROY EVERYTHING!



Unsatisfactory Report

For U. S. Army Air Force Personnel:-

In the event of malfunctioning, unsatisfactory design, or unsatisfactory installation of any of the component units of this equipment, or if the material contained in this book is considered inadequate or erroneous, an Unsatisfactory Report, AAF Form No. 54, or a report in similar form, shall be submitted in accordance with the provisions of Army Air Force Regulation No. 15-54, listing:

1. Station and organization.
2. Nameplate data (type number or complete nomenclature if nameplate is not attached to the equipment).
3. Date and nature of failure.
4. Radio model and serial number.
5. Remedy used or proposed to prevent recurrence.
6. Handbook errors or inadequacies, if applicable.

For U. S. Navy Personnel:-

Report of failure of any part of this equipment during its guaranteed life shall be made on Form N. Aer. 4112, "Report of Unsatisfactory or Defective Material," or a report in similar form, and forwarded in accordance with the latest instructions of the Bureau of Aeronautics. In addition to other distribution required, one copy shall be furnished to the inspector of Naval Materiel (location to be specified) and the Bureau of Ships. Such reports of failure shall include:

1. Reporting activity.
2. Nameplate data.
3. Date placed in service.
4. Part which failed.
5. Nature and cause of failure.
6. Replacement needed (yes—no).
7. Remedy used or proposed to prevent recurrence.

For British Personnel:-

Form 1022 procedure shall be used when reporting failure of radio equipment.

SECTION I GENERAL DESCRIPTION

1. GENERAL.

(See figure 1-1.)

a. Radio Receiver BC-1066-A and Radio Receiver BC-1066-B are calibrated radio receivers which can be used to check the frequency and to listen to the opera-

tion of other radio equipment.

b. The receivers operate within the frequency ranges of the I band and the G band. Radio Receiver BC-1066-B covers a wider range of frequencies at the high end of the G band than does Radio Receiver BC-1066-A.

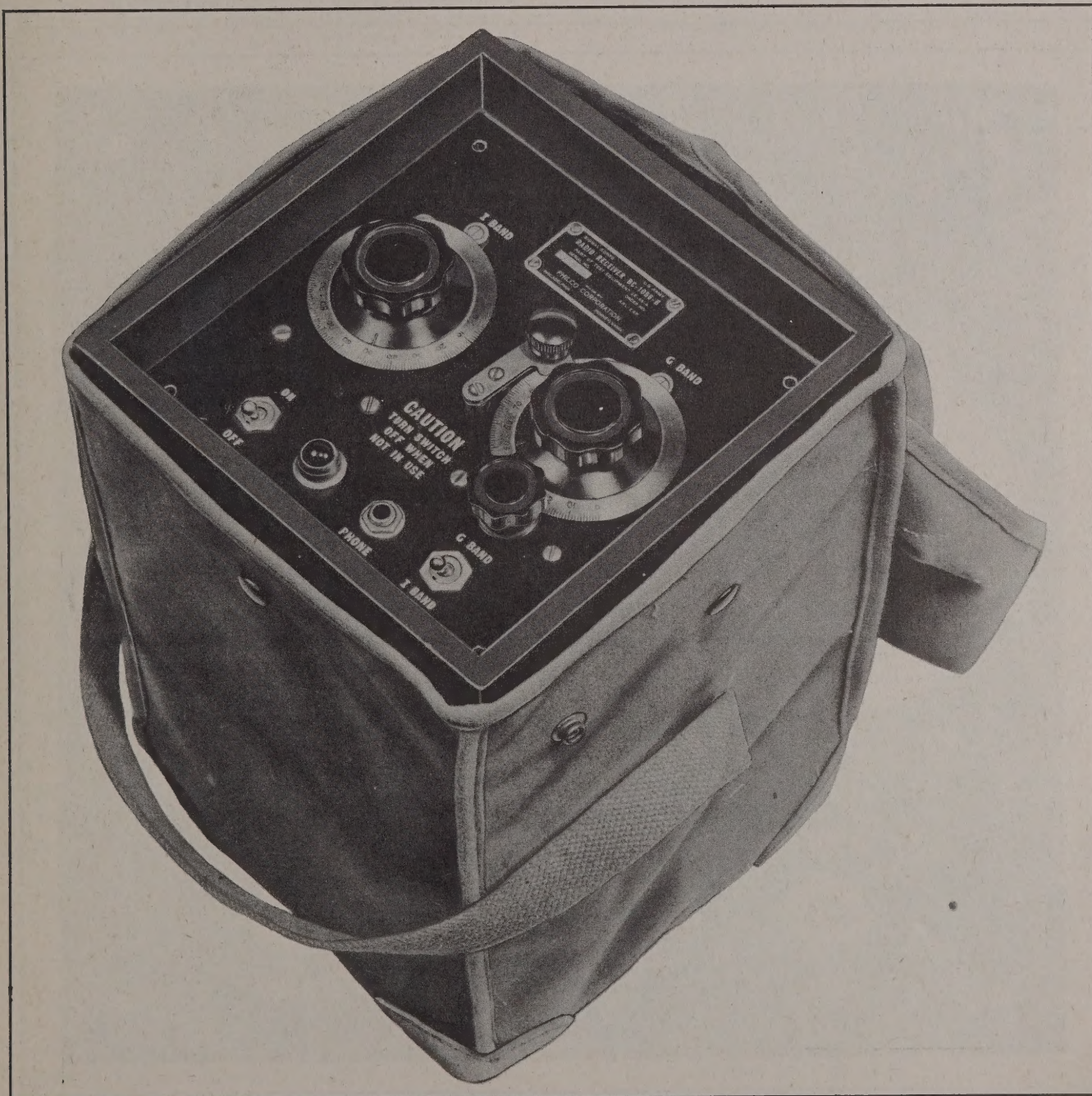


Figure 1-1. Radio Receiver BC-1066-A or BC-1066-B

c. The power supply for the receiver is self-contained and consists of three 45-volt batteries (Battery BA-53-A) and one 1.5-volt battery (Battery BA-35-A).

2. EQUIPMENT SUPPLIED.

The following table lists the equipment supplied with Radio Receiver BC-1066-A or BC-1066-B.

Quantity per Equipment	Name of Unit	Army Type Designation	Navy Type Designation	Overall Dimensions (inches)	Weight (pounds)	Numerical Reference Series
1	Radio Receiver including: 2 Tubes 1 Tube 1 Cover (canvas)	BC-1066-A or BC-1066-B JAN-957 JAN-1D8GT	JAN-957 JAN-1D8GT	8 x 8 x 13 1/2 8 3/4 x 8 3/4 x 14	 Total Weight 17.5	1-99 100-199

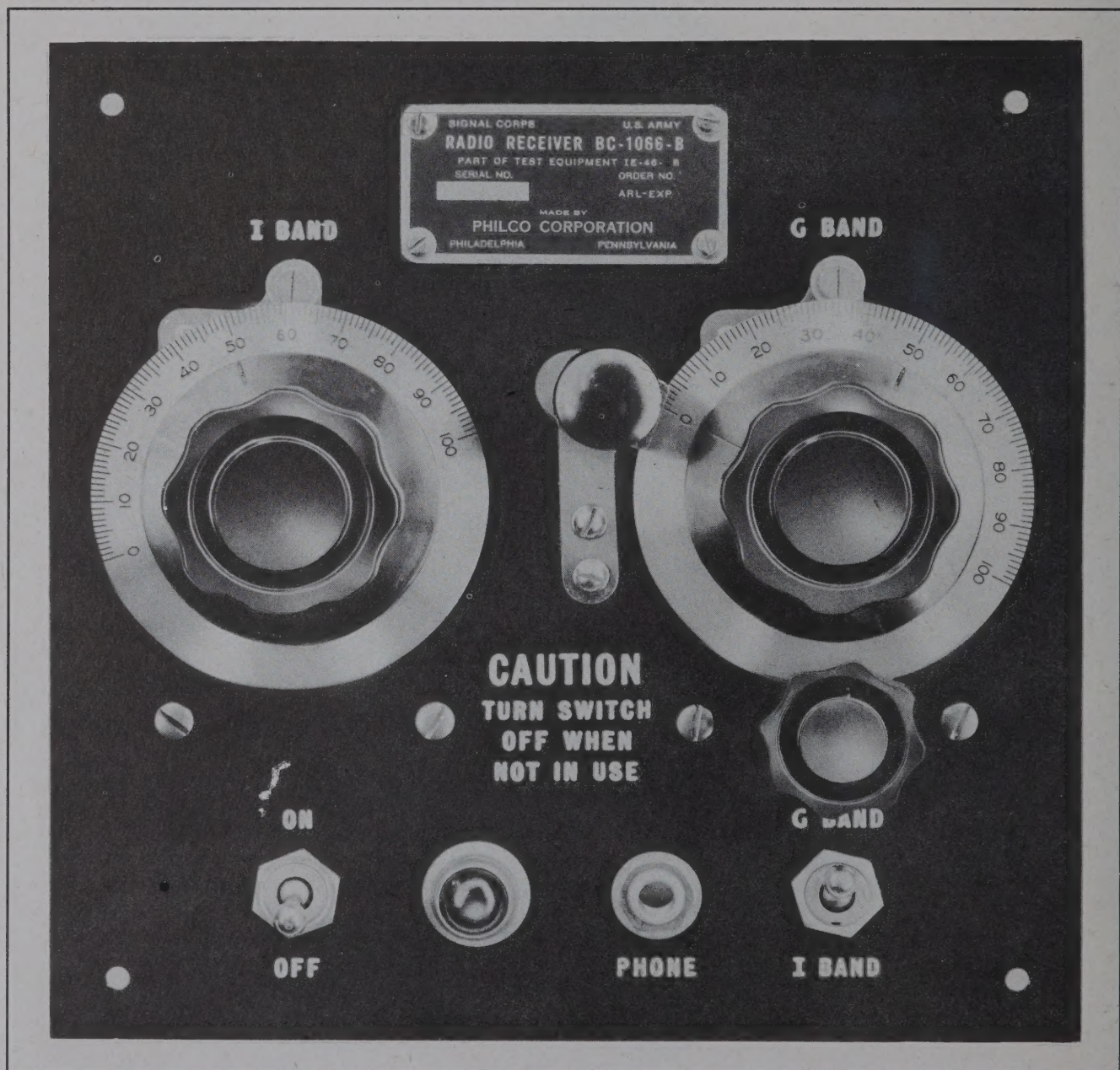


Figure 1-2. Radio Receiver BC-1066-A or BC-1066-B—Front Panel View

3. EQUIPMENT REQUIRED BUT NOT SUPPLIED.

The following table lists the equipment required but not supplied with Radio Receiver BC-1066-A or BC-1066-B.

Quantity per Equipment	Name of Unit	Army Type Designation
2	Battery (one in use; one spare)	BA-35-A
4	Battery (three in use; one spare)	BA-53-A
1	Headset	HS-33 (or equivalent)
1	Headset Adapter	MC-385
1	Frequency Meter	BC-906-C or BC-906-D
1	Signal Generator	I-196-A or I-196-B

4. DESCRIPTION OF MAJOR ASSEMBLY.

a. Radio Receiver BC-1066-A or BC-1066-B is housed in a black lacquer-finished wooden cabinet. The batteries are located in the bottom of the cabinet.

Note

Space is provided in the battery compartment for one spare 1.5-volt battery and one spare 45-volt battery.

b. All the controls appear on the top panel of the receiver where they are easily accessible. (See figure 1-2.)

SECTION II

OPERATION AND ADJUSTMENT

1. UNPACKING THE EQUIPMENT.

Note

Radio Receiver BC-1066-A and Radio Receiver BC-1066-B are shipped with the tubes in the sockets but without batteries.

- Remove the four corner screws from the top panel of the radio receiver and lift the receiver from the case.
- Inspect the receiver for possible damage.
- Check to see that the tubes are seated firmly in the sockets.
- Return the receiver to the case and replace the four screws.

2. INSTALLATION OF BATTERIES.

Install the batteries in the battery compartment of the receiver as follows:

- Loosen the snap slide fastener on the door of the battery compartment and open the door.
- Unscrew the wing nut from the bolt which holds the T-shaped block of wood securing the batteries in place.
- Pull the block of wood off the bolt and remove from the battery compartment.
- Connect three 45-volt batteries (Battery BA-53-A) in series and place them, together with one spare 45-volt battery, in the rear of the battery compartment.
- Place two 1.5-volt batteries (Battery BA-35-A), one to be used as a spare, in the front of the battery compartment.
- Connect the batteries as shown on the wiring diagram inside the battery compartment door. (See the schematic diagrams, figures 7-5 and 7-6.
- Place the T-shaped block of wood over the bolt and replace the wing nut on the bolt.

b. Close the battery compartment door and fasten the snap slide fastener.

3. STARTING AND STOPPING THE EQUIPMENT.

- To start the equipment, push the "ON-OFF" switch to the "ON" position.
- To stop the equipment, push the "ON-OFF" switch to "OFF."

4. PREOPERATIONAL TESTS.

a. PRELIMINARY QUICK CHECK OF EQUIPMENT.

(1) With the batteries connected as outlined in paragraph 2, this section, remove the top panel of the receiver. (See par. 1.a., this section.)

(2) Perform the following operations:

- Plug Headset HS-33 through Headset Adapter MC-385 into the "PHONE" jack on the receiver panel.
- Place the "ON-OFF" switch in the "ON" position; the pilot lamp should light.
- Place the "I BAND-G BAND" switch in the "G BAND" position.
- Tap the grid of the G band oscillator tube JAN-957 (100-1). If the G band is operating a click will be heard in the headset.
- Place the "I BAND-G BAND" switch in the "I BAND" position.
- Tap the grid of the I band oscillator tube JAN-957 (100-2). If the I band is operating a click will be heard in the headset.
- Turn off the "ON-OFF" switch.
- Replace the top panel.
- TEST FOR BAND COVERAGE USING SIGNAL GENERATOR.

(1) Place Signal Generator I-196-A or I-196-B (refer to sec. V, par. 1) approximately three feet from Radio Receiver BC-1066-A or BC-1066-B.

(2) Place the generator "ON-OFF" switch in the "ON" position.

(3) Adjust the "LO-TONE-HI" control on the signal generator to any agreeable tone.

(4) Set the "LO-I-G-HI" control on the signal generator to the middle of the I band.

(5) Turn on the "ON-OFF" switch of the radio receiver.

(6) Place the receiver "G BAND-I BAND" switch in the "I BAND" position.

(7) Rotate the "I BAND" tuning dial of the test receiver until the characteristic tone of the signal generator is plainly heard.

Note

Radio Receiver BC-1066-A or BC-1066-B employs oscillating detectors, therefore the tone heard in the receiver from the signal generator will be rough or mushy.

(8) Make several settings of the signal generator and the receiver to be sure of correct operation over the entire "I BAND."

(9) Set the "LO-I-G-HI" control on the signal generator to the middle of the G band.

(10) Place the receiver "I BAND-G BAND" switch in the "G BAND" position and follow the same procedure for checking the G band as outlined above for the I band. Make several settings of the signal generator to be sure of correct operation over the entire G band.

(11) Turn off the "ON-OFF" switches of the generator and the receiver.

5. ADJUSTMENT OF RECEIVER FREQUENCY.

Frequency Meter BC-906-C or BC-906-D is used to adjust the receiver frequency. (Refer to sec. V, par. 1.) Proceed as follows:

a. Place the receiver on its side with the door-side down. If the frequency to be used lies within the G band, set the frequency meter behind the receiver and place the antenna of the frequency meter in a horizontal position over the G band side of the receiver.

b. If the frequency to be used lies within the I band, set the frequency meter behind the receiver and place the antenna of the frequency meter in a horizontal position over the I band side of the receiver.

c. Obtain information from the officer-in-charge as to the proper setting of the frequency meter dial for the frequency to be used.

d. Place the "HI-LO" switch on the frequency meter in the "HI" position.

e. Turn on the frequency meter and the radio receiver.

f. If the frequency to be used falls within the I band, place the receiver "I BAND-G BAND" switch in the "I BAND" position. Rotate the "I BAND" dial until a

maximum dip occurs on the meter of the frequency meter.

g. If the frequency to be used falls within the G band, place the receiver "I BAND-G BAND" switch in the "G BAND" position. Rotate the "G BAND" dial until a maximum dip occurs on the meter of the frequency meter.

6. TUNING A TRANSMITTER TO A GIVEN FREQUENCY USING RADIO RECEIVER BC-1066-A OR BC-1066-B.

a. Tune the receiver to the desired frequency (frequency to which the transmitter is to be tuned) as described in paragraph 5, this section.

b. Place Radio Receiver BC-1066-A or BC-1066-B approximately 10 feet away from the antenna of the equipment to be tested.

IMPORTANT

Radio Receiver BC-1066-A or BC-1066-B radiates a c-w signal at all times during operation that may block certain IFF receivers such as Radio Set SCR-695-().* If blocking is suspected, perform the tests described in paragraph 7, this section.

c. Turn on the equipment to be tested and adjust all controls for normal operation according to the handbook of maintenance instructions for that equipment.

d. Plug Headset HS-33 through Headset Adapter MC-385 into the "PHONE" jack of the receiver.

e. Place the receiver "ON-OFF" switch in the "ON" position.

Note

If the transmitter being tested has a frequency range that might result in the harmonic of one of its frequencies being picked up by Radio Receiver BC-1066-A or BC-1066-B, the transmitter should first be set to the approximate frequency according to the handbook of maintenance instructions.

f. Adjust the transmitter frequency adjustment control until a tone is heard in the headset. Continue adjusting the control for a maximum loudness of the tone. The transmitter is now tuned to the frequency to which the receiver is set.

g. Turn off the "ON-OFF" switches of the radio receiver and the equipment being tested.

7. CHECK FOR BLOCKING OF IFF EQUIPMENT.

a. Radio Receiver BC-1066-A or BC-1066-B radiates a c-w signal at all times during operation which blocks certain IFF receivers if the test receiver is operated too near the antenna of the IFF equipment.

b. To ascertain whether an IFF receiver is being blocked by Radio Receiver BC-1066-A or BC-1066-B, use Signal Generator I-196-A or I-196-B to perform the following tests:

(1) Turn on the signal generator, the IFF equipment, and the radio receiver.

(2) Trigger the IFF equipment by adjusting the signal generator to the same frequency as that of the IFF receiver.

(3) Plug Headset HS-33 through Headset Adapter MC-385 into the phone jack on the IFF equipment.

(4) Listen for a steady tone which indicates that the signal generator and IFF equipment are operating.

(5) Plug the headset into the "PHONE" jack on the panel of Radio Receiver BC-1066-A or BC-1066-B.

(6) Listen for the intermittent wheeze, combined with a discordant tone, which indicates that the IFF equipment is transmitting.

(7) If the above indication of transmission is not present, move the radio receiver farther away from the IFF equipment until blocking no longer occurs.

SECTION III

THEORY OF OPERATION

1. GENERAL.

(See figures 7-5 and 7-6.)

a. Radio Receiver BC-1066-A or BC-1066-B consists of two separate oscillating detector circuits, either one of which, by the action of the "I BAND-G BAND" switch may be fed into a two-stage audio amplifier. No external antenna is provided. The receivers are not shielded, and the loops in the tuned circuits provide enough signal pickup for test purposes. Audio output is fed to jack 116 in Radio Receiver BC-1066-B or jack 21 in Radio Receiver BC-1066-A, and a headset may be used to listen to the received signal. The receivers are powered entirely by the batteries housed in the receiver cabinets.

b. When the receivers are operating normally and no signals are being received, the detector (tube JAN-957) oscillates steadily and draws a constant plate current. When a pulse signal of the same frequency as that of the detector circuit is received, the detector circuit is disturbed which causes a change in plate current. The change in plate current causes a change in voltage across the plate load resistor. This voltage is amplified through the triode and pentode sections of tube JAN-1D8GT and is fed to the headset for monitoring.

2. DETAILED FUNCTIONING OF PARTS.

a. RADIO RECEIVER BC-1066-B.

(See figures 7-3, 7-4, and 7-6.)

(1) G BAND CIRCUIT.

(a) A high-frequency battery triode vacuum tube JAN-957 (100-1) is used in an oscillating detector circuit consisting of loop 103-1 tuned by variable air capacitor 101 (controlled by "G BAND" dial) and ceramic, variable, trimmer-type capacitor 102-1.

(b) Radio-frequency choke 105-1 filters out any r-f voltage and the audio signal is fed to switch 110. Resistor 106-1, connected between radio-frequency choke 105-1 and "ON-OFF" switch 119, is the plate load resistor for tube JAN-957 (100-1). Resistor 126-1 provides self bias for tube JAN-957 (100-1).

(c) The filament circuit is decoupled by capacitor 104-4 connected across the tube filament at the socket, radio-frequency choke 109-2 connected from one fila-

ment contact to ground and radio-frequency choke 109-3 connected from the other filament contact, through switch 110 and switch 119, to the positive terminal of the filament battery.

(d) Tube JAN-957 (100-1) continues to oscillate as long as the "I BAND-G BAND" switch is in the "G BAND" position. The frequency of oscillation is determined by the tuned plate circuit consisting of loop 103-1 and capacitors 101 and 102-1. When a signal is picked up by loop 103-1 it is heterodyned with the oscillations of tube JAN-957, and an audio-frequency result is fed to the audio amplifier tube JAN-1D8GT (121).

(2) I BAND CIRCUIT.

(a) A high-frequency battery triode vacuum tube JAN-957 (100-2) is used in an oscillating detector circuit consisting of loop 103-2 tuned by variable air capacitor 108 (controlled by the "I BAND" dial) and ceramic trimmer-type capacitor 102-2. The two capacitors are connected in parallel. One end of the loop goes to the plate of tube JAN-957 and the other end goes to the grid through mica capacitor 104-3.

(b) B-Voltage is fed to the circuit, and audio voltage is taken from the circuit at a tap on loop 103-2. Radio-frequency choke 105-2 filters out any r-f voltage, and the audio signal is fed to switch 110. Resistor 106-2, connected between radio-frequency choke 105-2 and the "ON-OFF" switch 119, is a plate load resistor for tube JAN-957 (100-2). Resistor 126-2 provides self bias for tube JAN-957 (100-2).

(c) The filament circuit is decoupled by capacitor 104-2, connected across the tube filament at the socket, and radio-frequency choke 105-3 connected at the tube socket in series with the positive filament voltage.

(d) Tube JAN-957 (100-2) continues to oscillate as long as the "I BAND-G BAND" switch is in the "I BAND" position. The frequency of oscillation is determined by the tuned plate circuit consisting of loop 103-2 and capacitors 108 and 102-2. When a signal is picked up by loop 103-2 it is heterodyned with the oscillations of tube JAN-957 (100-2) and an audio result is fed to the audio amplifier tube JAN-1D8GT (121).

(3) AUDIO AMPLIFIER TUBE JAN-1D8GT.

(a) The audio system employs the triode and pentode sections of dual tube JAN-1D8GT (121) as a two-stage resistance-coupled amplifier. The audio signal from the detector circuit is fed through capacitor 111-1 to the grid of the triode section of tube JAN-1D8GT.

(b) Output is taken from the plate of the pentode section, which is coupled to the headset jack through capacitor 115. Radio-frequency choke 105-5, between the plate of the pentode section and capacitor, 115, is used to block any r-f voltage which may be in the audio circuit.

(c) Grid bias voltage for the triode section is obtained through the filament voltage drop. Bias voltage for the pentode section is obtained from the drop across resistor 107. The pentode grid resistor 122 is connected to B-, which is negative with respect to ground.

b. RADIO RECEIVER BC-1066-A.

(See figures 7-1, 7-2, and 7-5.)

(1) I BAND CIRCUIT.

(a) The I band detector circuit is made up of loop 10 tuned by variable capacitors 8 and 9.

(b) The high voltage is supplied from batteries 27-1, 27-2, and 27-3 through switch 14, plate load resistor 7-1, and r-f choke 6-3 to the plate of tube JAN-957 (1-2). Capacitor 15-A is the high voltage supply filter.

(c) Capacitor 11-1 serves as a grid coupling capacitor for tube JAN-957 while r-f choke 6-6 provides the grid load for the same tube.

(d) The low voltage is supplied from battery 26-1 through switch 14, switch 12, and r-f choke 6-5. Capacitors 11-2 and 11-3 serve as r-f bypasses in the filament circuit.

(e) Tube JAN-957 (1-2) continues to oscillate as long as the "I BAND-G BAND" switch is in the "I BAND" position. The frequency of oscillation is determined by the tuned plate circuit consisting of loop 10 and capacitors 8 and 9. When a signal is picked up by loop 10 it is heterodyned with the oscillations of tube JAN-957, and an audio result is fed to the first amplifier.

(2) G BAND CIRCUIT.

(a) The G band detector circuit of the receiver consists of parallel lines 2-1 and 2-2 tuned by variable capacitors 3 and 4.

(b) The high voltage is supplied by batteries 27-1, 27-2, and 27-3 through switch 14, plate resistor 7-2, and r-f choke 6-1 to the plate of tube JAN-957 (1-1). Choke 6-2 provides the grid load for tube JAN-957 (1-1). Capacitor 5 is the grid coupling capacitor.

(c) The low voltage is supplied from battery 26-1 through switch 14 and switch 12.

(d) Tube JAN-957 (1-1) continues to oscillate as long as the "I BAND-G BAND" switch is in the "G BAND" position. The frequency of oscillation is determined by the tuned circuit consisting of the parallel lines 2-1 and 2-2 and capacitors 3 and 4. When a signal is picked up by the tuned circuit it is heterodyned with the oscillations of tube JAN-957 (1-1), and an audio frequency result is fed to the first audio amplifier.

(3) TRIODE SECTION OF TUBE JAN-1D8GT (22).

(a) The signal voltage is applied to the first amplifier tube JAN-1D8GT (22) triode section through switch 12 and coupled to the grid by capacitor 13-1. Resistor 16 is the grid resistance of the first amplifier.

(b) The high voltage is supplied by batteries 27-1, 27-2, and 27-3 through switch 14 and resistor 17.

(c) The low voltage is supplied by battery 26-1 through switch 14.

(4) PENTODE SECTION OF TUBE JAN-1D8GT (22).

(a) The signal voltage is supplied to the output tube JAN-1D8GT (22) pentode section through capacitor 13-2.

(b) The high voltage is supplied by batteries 27-1, 27-2 and 27-3 through switch 14 and resistor 18 to the plate of tube JAN-1D8GT.

(c) The low voltage is supplied by battery 26-1 through switch 14.

(d) Resistor 24 supplies grid bias and is bypassed by capacitor 15-B.

(e) Resistor 23 acts as a grid leak for tube JAN-1D8GT (22). An r-f choke 6-7 and capacitor 20 couple the plate to the output phone jack 21.

SECTION IV

MAINTENANCE

IMPORTANT

Periodic inspections prescribed herein represent minimum requirements. If, because of local conditions, peculiarities of equipment, or abnormal usage, they are found insufficient to attain satisfactory operation of equipment,

local authorities should not hesitate to increase their scope or frequency.

1. MONTHLY INSPECTION.

Every thirty days perform the following inspection:

a. Remove the four corner screws from the top panel and lift the receiver from the case.

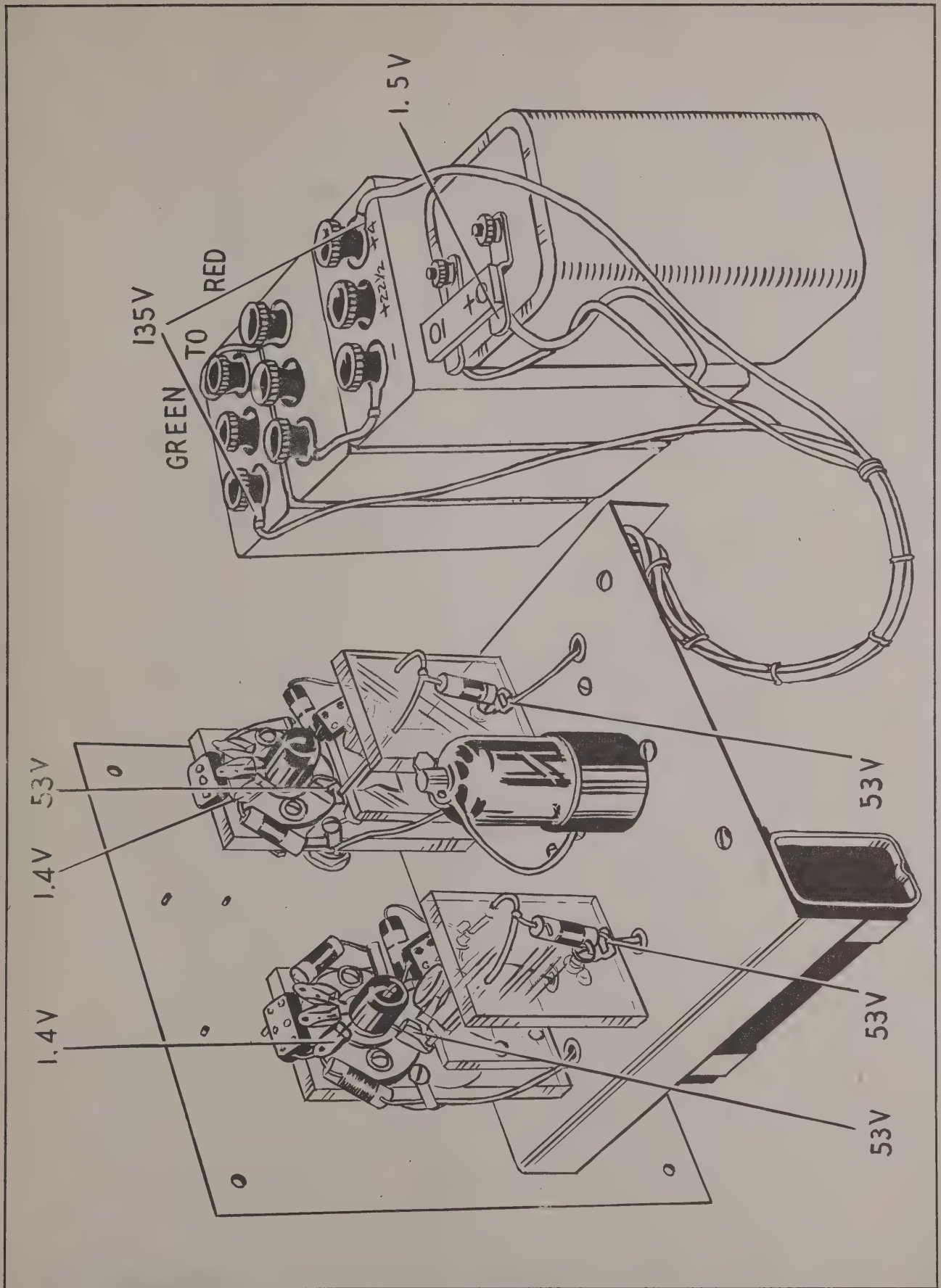


Figure 4-1. Radio Receiver BC-1066-B—Top Rear View, Voltage Diagram

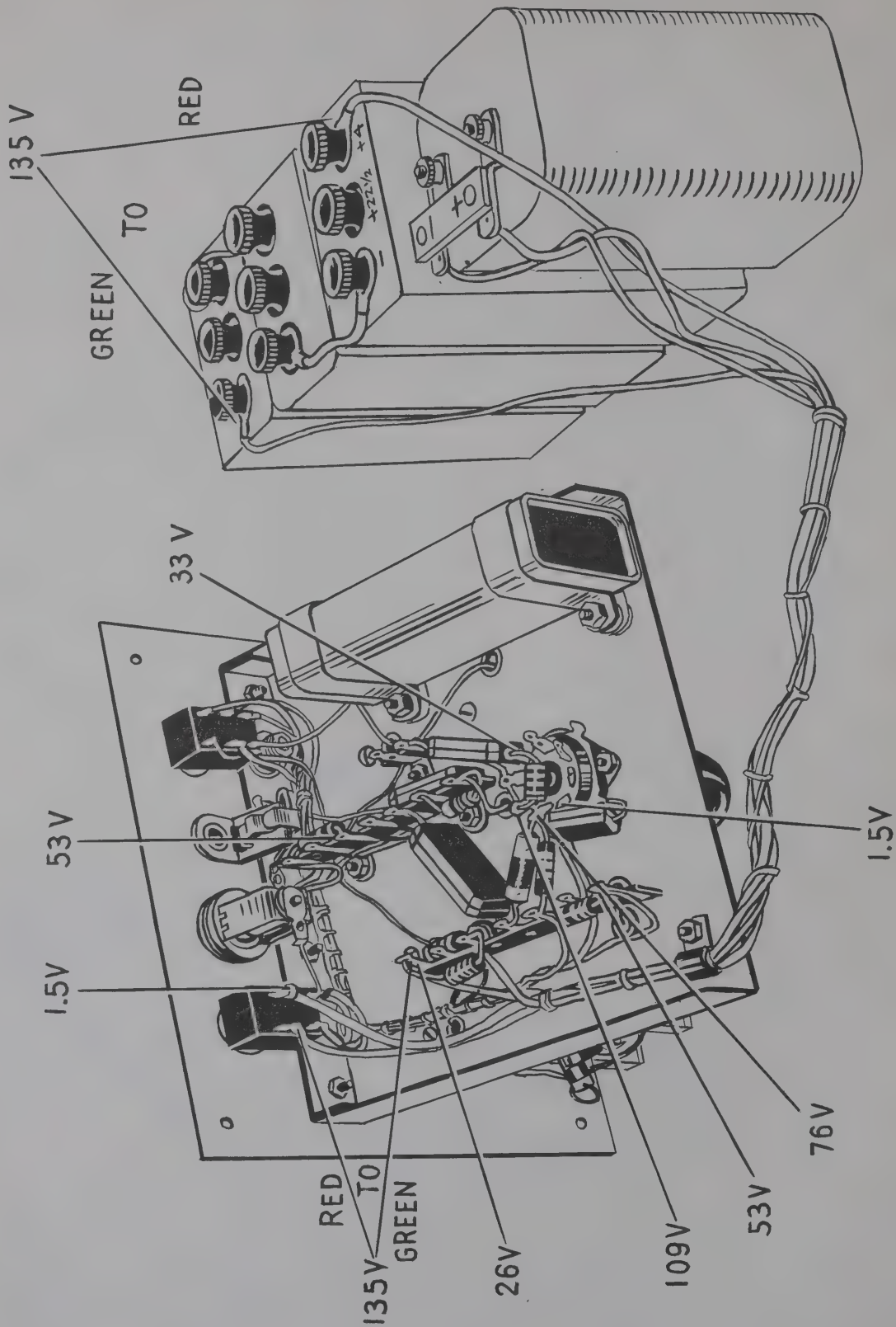


Figure 4-2. Radio Receiver BC-1066-B—Bottom Rear View, Voltage Diagram

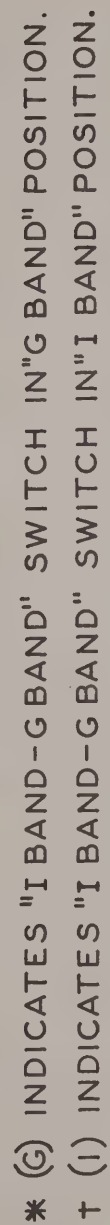


Figure 4-3. Radio Receiver BC-1066-B—Top Rear View, Resistance Diagram

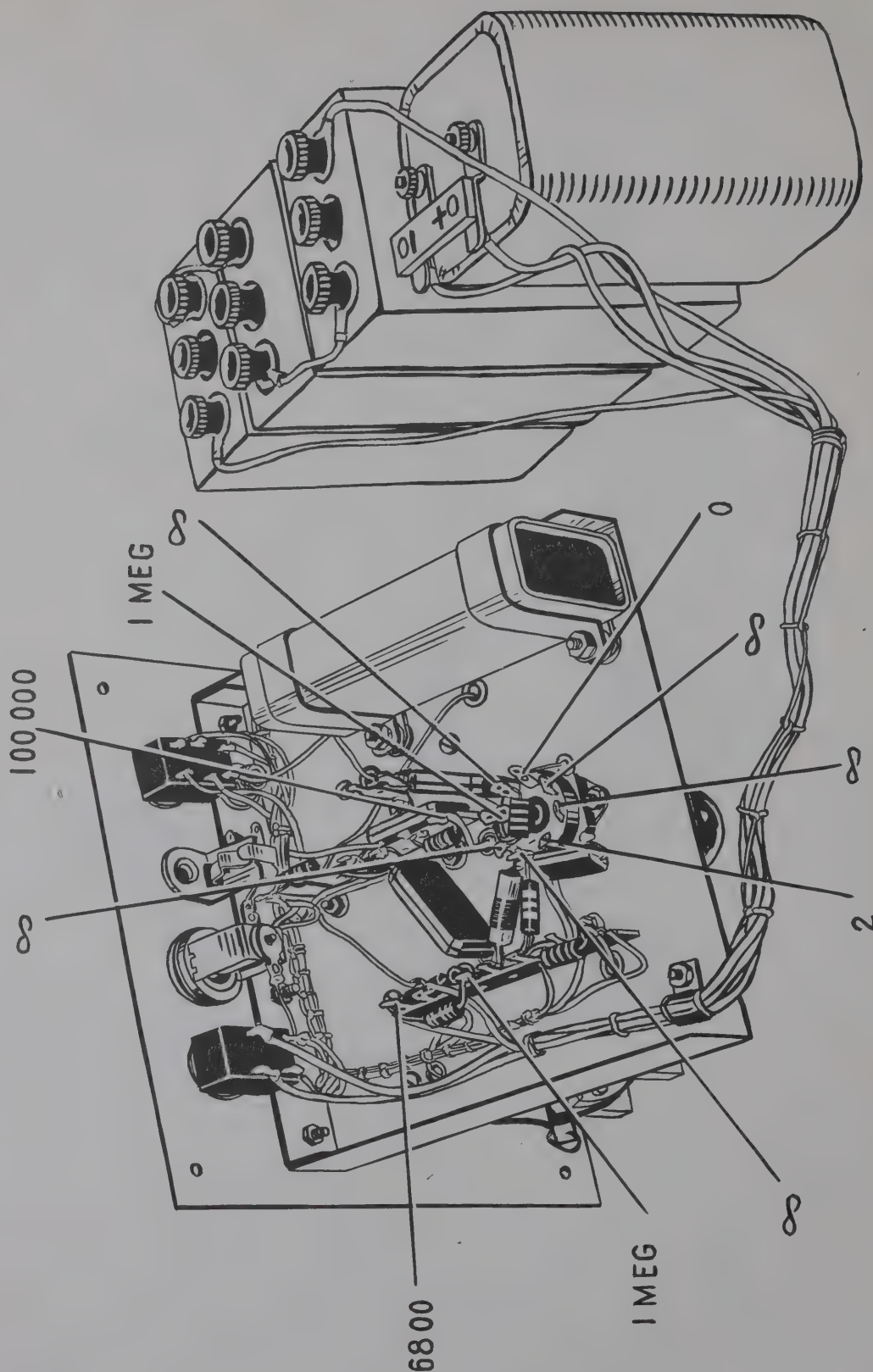


Figure 4-4. Radio Receiver BC-1066-B—Bottom Rear View, Resistance Diagram

b. Test the tubes with a tube tester and replace the faulty ones.

c. Inspect the variable condensers for corrosion and fungus growth. If evidence of fungus growth or corrosion is found, clean with a rag moistened in carbon tetrachloride.

d. Replace the receiver in the case and fasten the screws.

2. TROUBLE SHOOTING.

a. GENERAL.—Maintenance of Radio Receiver BC-1066-A or BC-1066-B generally will be only a matter of checking batteries and tubes. If tubes are replaced, check carefully to insure coverage over the bands. (Refer to sec. II, par. 4.*b.* for band coverage check.) (Refer to par. 4, this section, for directions for replacement of tubes.) If voltage is low following installation of new batteries, check with the voltage and resistance charts. (See figures 4-1, 4-2, 4-3, and 4-4.)

b. TROUBLE CHART.—The following chart indicates the main sources of trouble and remedial measures.

<i>Trouble</i>	<i>Check</i>
"G BAND" does not operate	Check voltages Check tube JAN-957 (100-1) or (1-1) Check "I BAND-G BAND" switch connection Check "G BAND" detector circuit Check batteries
"I BAND" does not operate	Check voltage Check tube JAN-957 (100-2) or (1-2) Check "I BAND-G BAND" switch connections Check "I BAND" detector circuit Check batteries
Output power weak	Check voltage Check headset and plug Check output circuit Check tube JAN-1D8GT (121) or (22) Check batteries
No output signal	Check headset and plug Check phone jack connection Check voltage of first amplifier and output circuits Check tube JAN-1D8GT (121) or (22) Check batteries
Pilot bulb does not light	Check connections Replace bulb
Set does not have correct coverage on either band	Check voltages of both detector circuits Check circuits Check tubes Check calibration (Refer to par. 4, this section.) Check loop and variable capacitors for shorts or mechanical injury

c. VOLTAGE AND RESISTANCE MEASUREMENTS.

(1) VOLTAGE MEASUREMENTS.

(*a*) Make all readings from points indicated to chassis unless otherwise noted. (See figures 4-1 and 4-2.)

(*b*) Make all readings with a 1000-ohms-per-volt d-c voltmeter.

(*c*) Make all readings above 1 volt on the 250-volt scale.

(*d*) Make all readings below 1 volt on the lowest scale available.

(2) RESISTANCE MEASUREMENTS.

(*a*) Make all resistance measurements to chassis. (See figures 4-3 and 4-4.)

(*b*) Make all readings with a 1000-ohms-per-volt d-c voltmeter.

3. REPLACEMENT OF VACUUM TUBES AND LAMPS.

a. Replace the vacuum tubes as follows:

(1) Remove the four corner screws from the top panel and lift the receiver from the case.

(2) Remove the faulty tubes and replace with tubes known to be good. Replace the tubes carefully to avoid damaging the glass around the pins.

(3) Replace the receiver in the case and fasten the screws.

b. Replace the pilot lamp as follows:

(1) Turn the lamp reflector in a counterclockwise direction and remove the reflector.

(2) Press in slightly on the bayonet type lamp, turn counterclockwise, and remove.

(3) Insert the new lamp, press in slightly, and turn clockwise.

(4) Replace the lamp reflector.

4. RECEIVER CALIBRATION.

a. PRELIMINARY PROCEDURE.

(1) Place the receiver so that it is resting on the side on which the door to the battery compartment is located. If the I band is being calibrated, set Frequency Meter BC-906-C or BC-906-D behind the receiver and place the antenna of the frequency meter in a horizontal position along the I band side of the receiver.

(2) If the G band is being calibrated, set the frequency meter behind the receiver and place the antenna of the frequency meter in a horizontal position along the G band side of the receiver.

Note

Take care to make an accurate frequency setting since the receiver tunes rather broadly.

b. I BAND CALIBRATION.

(1) Throw the "ON-OFF" switches of both receiver and frequency meter to "ON."

(2) Throw the "HI-LO" switch of the frequency meter to "HI."

(3) Throw the "I BAND-G BAND" switch on the receiver to the "I BAND" position.

(4) Set the receiver "I BAND" dial to "100."

(5) Set the frequency meter to the upper limit of the I band.

(6) If the upper limit of the I band does not fall at 100 on the "I BAND" dial, remove the receiver from the case and adjust the trimmer capacitor 102-2 for a maximum dip on the meter of the frequency meter with the "I BAND" dial set at "100." (See fig. 7-3.)

(7) Throw the "ON-OFF" switches of both receiver and frequency meter to "OFF."

c. G BAND CALIBRATION.

(1) Throw the "ON-OFF" switches of both receiver and frequency meter to "ON."

(2) Throw the "HI-LO" switch of the frequency meter to "HI."

(3) Throw the "I BAND-G BAND" switch on the receiver to "G BAND."

(4) Set the "G BAND" dial to "0."

(5) Set the frequency meter to the lower limit of the G BAND.

(6) If the lower limit of the G band does not fall at "0" on the "G BAND" dial, remove the receiver from the case and adjust trimmer capacitor 102-1 for a maximum dip on the meter of the frequency meter with the "G BAND" dial set at "0." (See figure 7-3.)

Note

The bands do not overlap at the high-frequency limit of the I band and the low-frequency limit of the G band.

SECTION V SUPPLEMENTARY DATA

1. FREQUENCY METER BC-906-C, BC-906-D AND SIGNAL GENERATOR I-196-A OR I-196-B.

a. Frequency Meter BC-906-D has a higher frequency range than Frequency Meter BC-906-C and Signal Generator I-196-B has a higher frequency range than Signal Generator I-196-A.

b. In general, Frequency Meter BC-906-D and Signal Generator I-196-B are used with Radio Receiver BC-1066-B. However, the instruction book for the equipment to be tested should be consulted to determine which models of the frequency meter and signal generator should be used.

2. TUBE COMPLEMENT.

The tube complement for either Radio Receiver BC-1066-A or BC-1066-B is as follows:

Reference Symbol		Stock Number	Type Designation		Function	Location of Spares
Radio Receiver BC-1066-A	Radio Receiver BC-1066-B		JAN-	VT-		
1-1	100-1	2J957	957	237	Detector, oscillator (G band)	None
1-2	100-2	2J957	957	237	Detector oscillator (I band)	None
22	121	2J1D8GT	1D8GT	148	Amplifier and output	None

3. PILOT LAMP COMPLEMENT.

Only one pilot lamp is used in a receiver. Its description follows:

Type Designation	Stock Number	Location
Mazda 49	2Z5971.1	Front panel

SECTION VI PARTS CATALOG

Introduction

Table of Parts

The parts listed in this table do not constitute a complete electrical and mechanical breakdown of the equipment. The table lists all electrical parts together with such operative mechanical parts as are subject to loss or failure, with the exception of structural and minor parts such as standard bolts, screws, nuts, and the like. In some instances individual detail parts of a sub-assembly may not be listed as separate items, since replacement of such items is impractical.

Ordering of Spare Parts

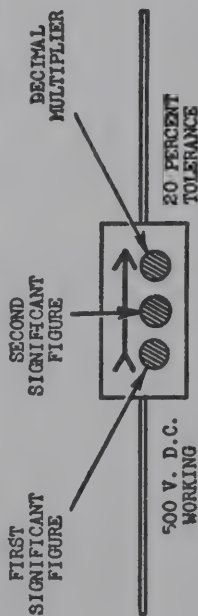
Each Service using this list has established certain depots and service groups for the storage and issue of spare parts to its organizations requiring them. The regulations of each Service should be studied to determine the method and source for requisitioning spare parts. The information in this list, as to manufacturer's or contractor's name, type, model, or drawing number, is not to be interpreted as authorization to field agencies to attempt to purchase identical or comparable spare parts directly from the manufacturer or a wholesale or retail store except under emergency conditions as covered by existing regulations of the Service concerned.

U. S. Army Personnel: This table is for information *only* and is not to be used as a basis for requisitioning parts. Authorities for obtaining maintenance items are as follows: 1. For using organizations: applicable Service publications of the 00-30 series of AAF Technical Orders. 2. For higher maintenance and supply echelons: applicable Service publications of the 08-55 series of AAF Technical Orders.

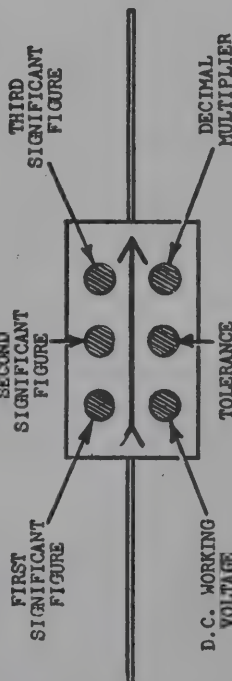
COLOR CODES

CAPACITORS (MMFD)

RMA COLOR CODES FOR CAPACITORS (MMFD)



COLOR	NUMERAL	VOLTS	MULTIPLIER	TOLERANCE
BLACK	0		1	1%
BROWN	1	100	10	2%
RED	2	200	100	3%
ORANGE	3	300	1,000	4%
YELLOW	4	400	10,000	5%
GREEN	5	500	100,000	6%
BLUE	6	600	1,000,000	7%
VIOLET	7	700	10,000,000	8%
GRAY	8	800	100,000,000	9%
WHITE	9	900	1,000,000,000	5%
GOLD		1000	0.1	10%
SILVER		2000	0.01	20%
NO COLOR		500		



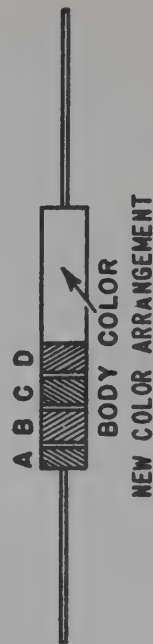
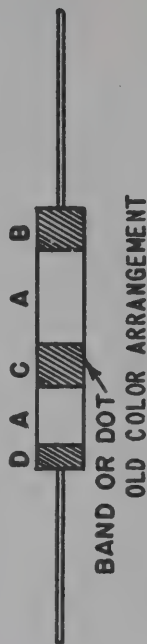
RESISTORS (OHMS)

RMA COLOR CODE FOR RESISTORS (OHMS)

COLOR	A 1ST DIGIT	B 2ND DIGIT	C MULTIPLIER
SILVER			0.01
GOLD			0.1
BLACK		0	1.0
BROWN		1	10
RED		2	100
ORANGE		3	1,000
YELLOW		4	10,000
GREEN		5	100,000
BLUE		6	1,000,000
PURPLE		7	10,000,000
GRAY		8	100,000,000
WHITE		9	

D - TOLERANCE CODE:

GOLD = 5% SILVER = 10% NO COLOR = 20%



BODY COLOR (NEW COLOR ARRANGEMENT ONLY) INDICATES TYPE OF RESISTOR, AS FOLLOWS:-
BLACK - COMPOSITION, NON-INSULATED
TAN, OLIVE OR WHITE - COMPOSITION, INSULATED
DARK BROWN - WIRE-WOUND, INSULATED

TABLE OF PARTS

MODEL: RADIO RECEIVER BC-1066-A

Reference Symbol	Army Stock No. Navy Stock No. British Ref. No.	Name of Part and Description	Function	Mfr. and Desig. or Standard Type	Cont. or Govt. Drug. or Spec. No.
1-1	2J957 — —	TUBE, vacuum: type JAN-957 (VT-237).	Detector-oscillator G Band		453-1360
1-2		TUBE, vacuum: same as Ref. 1-1.	Detector-oscillator I Band		
2-1	1A812.8 — —	WIRE: transmission line; silver plated copper; #12 B & S; 27/8" long.	Part of resonating circuit G Band		258-3345
2-2		WIRE: same as Ref. 2-1.	Part of resonating circuit G Band		
3	3D9003VE7 — —	CAPACITOR, trimmer: 3.7 to 50 micromicrofarads; ceramic base.	G Band resonating circuit		351-1037
4	3D9004V-2 — —	CAPACITOR, variable: air; 4 to 30 micromicrofarads; ceramic base.	G Band resonating circuit		305-1027
5	3D9015-17 — —	CAPACITOR, fixed: 15 micromicrofarads $\pm 10\%$; 500 v.d.c.w.; mica.	G Band resonating circuit		305-1282
6-1	3C318-7 — —	COIL, R-F choke: 25 turns of #34 DSC copper wire on ceramic form; 13/16" long.	G Band detector plate circuit r-f blocking		352-1042
6-2		COIL: same as Ref. 6-1.	G Band detector grid load		
6-3		COIL: same as Ref. 6-1.	I Band detector plate circuit r-f blocking		
6-4		COIL: same as Ref. 6-1.	I Band detector filament r-f blocking		
6-5		COIL: same as Ref. 6-1.	I Band detector filament r-f blocking		
6-6		COIL: same as Ref. 6-1.	I Band detector grid load		
6-7		COIL: same as Ref. 6-1.	Output r-f filter		
7-1	3RC21BE153K — —	RESISTOR, fixed: 15,000 ohms $\pm 10\%$; 1/2 watt; carbon.	I Band detector plate load		66-3153340
7-2		RESISTOR: same as Ref. 7-1.	G Band detector plate load		
8	3D9002VE5-1 — —	CAPACITOR, variable: air; 2.5 to 7.5 micromicrofarads; ceramic base.	I Band resonating circuit		351-1038
9	3D9001VE5-1 — —	CAPACITOR, trimmer: 1.5 to 7 micromicrofarads; ceramic base.	I Band resonating circuit		351-1033

TABLE OF PARTS—Continued

MODEL: RADIO RECEIVER BC-1066-A

Reference Symbol	Army Stock No. Navy Stock No. British Ref. No.	Name of Part and Description	Function	Mfr. and Desig. or Standard Type	Cont. or Govt. Dwg. or Spec. No.
10	2A1939 — —	LOOP: wire; silver plated copper; #12 B & S.	I Band resonating circuit		258-3341
11-1	3K2051122 — —	CAPACITOR, fixed: 510 micromicrofarads $\pm 5\%$; 500 v.d.c.w.; mica.	I Band detector grid coupling		60-10505417
11-2	— —	CAPACITOR: same as Ref. 11-1.	I Band detector filament r-f bypass		
11-3	— —	CAPACITOR: same as Ref. 11-1.	I Band detector filament r-f bypass		
12-A	3Z9849.11 — —	SWITCH, toggle: DPDT; polished nickel finish.	Band selector switch		462-1009
13-1	3DA10-125 — —	CAPACITOR, fixed: 10,000 micromicrofarads $\pm 10\%$; 500 v.d.c.w.; mica.	Detector amplifier coupling		305-1023
13-2	— —	CAPACITOR: same as Ref. 13-1.	Amplifier coupling		
14	3Z9849.12 — —	SWITCH, toggle: DPST; polished nickel finish.	Power switch		462-1008
15-A	3DB3.7 — —	CAPACITOR, fixed: two sections; each 3 microfarads $+20\%$, -10% ; 400 v.d.c.w.; paper.	B power supply bypass		305-1257
15-B	— —	CAPACITOR: see Ref. 15-A.	Bias dropping resistor bypass		
16	3Z4550 — —	RESISTOR, fixed: 100,000 ohms $\pm 10\%$; $1/2$ watt; carbon.	First amplifier grid leak		66-4103340
	— —	OR			
	3Z6801-53 — —	RESISTOR, fixed: 1 megohm $\pm 10\%$; $1/2$ watt; carbon.			
17	3RC21BE474K — —	RESISTOR, fixed: 370,000 ohms $\pm 10\%$; $1/2$ watt; carbon.	First amplifier plate load		66-4473340
18	3RC21BE683K — —	RESISTOR, fixed: 68,000 ohms $\pm 10\%$; $1/2$ watt; carbon.	Output amplifier plate load		66-3683340
19	3K2010121 — —	CAPACITOR, fixed: 100 micromicrofarads $\pm 10\%$; 500 v.d.c.w.; mica.	Output r-f filter bypass		60-10105417

20	3DA100-112	CAPACITOR, fixed: 100,000 micromicrofarads +20%, -10%; 400 v.d.c.w.; paper.	Output voltage blocking	305-1086
21	2Z5540	JACK, phone: single contact; closed circuit; fits plug PL-55.	Output connection	358-1195
22	2J1D8GT	TUBE, vacuum: type JAN-1D8GT (VT-148).	Amplifier and output	453-1361
23	3Z4534	RESISTOR, fixed: 1 megohm $\pm 10\%$; $\frac{1}{2}$ watt; carbon.	Output grid leak	66-5103340
24	5Z6568	RESISTOR, fixed: 6800 ohms $\pm 10\%$; $\frac{1}{2}$ watt; carbon.	Bias voltage dropping	66-2683340
		OR		
	3Z6568-13	RESISTOR, fixed: 6800 ohms $\pm 10\%$; $\frac{1}{2}$ watt; carbon.		
25	2Z5971.1	LAMP, pilot: 2-volt; 0.06 ampere; type T-3 $\frac{1}{4}$.	Indicates when battery voltage is on	34-2065
26-1	3A35A	BATTERY: BA-35-A; $1\frac{1}{2}$ volts; dry cell.	Filament voltage	461-1001
26-2		BATTERY: same as Ref. 26-1.	Spare	
27-1	3A53A	BATTERY: BA-53-A; 45 volts; dry cell.	Plate voltage supply.	461-1002
27-2		BATTERY: same as Ref. 27-1.	Plate voltage supply.	
27-3		BATTERY: same as Ref. 27-1.	Plate voltage supply	
27-4		BATTERY: same as Ref. 27-1.	Spare	
28-1	2Z8761.1	SOCKET, tube: acorn; 5 contacts; ceramic.	Hold tube JAN-957	257-6005
28-2		SOCKET: same as 28-1.	Hold tube JAN-957	
29-1	6L50510	WASHER, fiber: o.d. $1\frac{1}{32}$ " ; i.d. 0.140" ; $\frac{1}{32}$ " thick.	Mount acorn tube socket	257-7140
29-2		WASHER: same as Ref. 29-1.	Mount acorn tube socket	
29-3		WASHER: same as Ref. 29-1.	Mount acorn tube socket	
29-4		WASHER: same as Ref. 29-1.	Mount acorn tube socket	
30-1	6L50210	WASHER: o.d. $\frac{5}{8}$ " ; i.d. 0.028" thick; white nickel finish.	Mount acorn tube socket	5W-1370FA43

Allen-Bradley

TABLE OF PARTS—continued

MODEL: RADIO RECEIVER BC-1066-A

Reference Symbol	Army Stock No. Navy Stock No. British Ref. No.	Name of Part and Description	Function	Mfr. and Desig. or Standard Type	Cont. or Govt. Dwg. or Spec. No.
30-2		WASHER: same as Ref. 30-1.	Mount acorn tube socket		
30-3		WASHER: same as Ref. 30-1.	Mount acorn tube socket		
30-4		WASHER: same as Ref. 30-1.	Mount acorn tube socket		
31-1	2Z9407	STRIP, terminal: canvas base bakelite; 7 lugs.	Wiring		358-2621
31-2		STRIP, terminal: same as Ref. 31-1.	Wiring		
32	2Z9402.3	STRIP, terminal: canvas base bakelite; 2 lugs.	Wiring		358-2622
33	2Z5991	SOCKET, pilot lamp: single contact; bayonet type.	Hold pilot light		358-1354
34-1	6Z541	SHAFT, bakelite: 1 1/2" long x 1/4" dia.	Rotate tuning capacitor		257-7602
34-2		SHAFT: same as Ref. 34-1.	Rotate tuning capacitor		
35-1	2Z3289	COUPLING, flexible: to fit 1/4" dia. shaft.	Turn tuning capacitor		36801153
35-2		COUPLING: same as Ref. 35-1.	Turn tuning capacitor		
36	2Z8650.1	SOCKET, tube: octal.	Hold tube JAN-1D8GT		
37	3G1840	INSULATOR: polystyrene; 1/4" x 2" x 1 1/4".	Insulate and mount tuning capacitor		257-7599
38-1	3Z1650	LUG, connector: 1/8" x 5/32" x 7/16".	Transmission line wire to capacitor		5L-1214FE9
38-2		LUG: same as Ref. 38-1.	Transmission line to I Band coil		
39	2Z3764	DIAL ASSEMBLY: driver mechanism, metal dial and two knobs.	Rotate I Band tuning capacitor		358-2607
40	2Z3764.1	DIAL ASSEMBLY: consists of friction drive mechanism, metal dial and two knobs.	Rotate G Band tuning capacitor		358-2608
41	3F3933-46A/D	DIAL CLAMP ASSEMBLY: overall protrusion approximately 1".	Hold G Band dial in set position		358-2611

42-1	3F3933-46A/B2 — —	BUSHING AND LOCK WASHER: includes hexagon nut, lockwasher and bushing.	For bakelite shaft	358-2619
42-2		BUSHING AND LOCKWASHER: same as Ref. 42-1.	For bakelite shaft	
43	2Z2708.1 — —	CAP: grid; metal; for 1/4" cap.	Grid connection	258-1100
44	3F3933-46A/S1 — —	SUPPORT: polystyrene.	Maintain transmission line in position	257-7601
45-1	3F3933-46A/L1 — —	LEAD WIRE: #20 stranded; tinned copper wire with spade tips on each end.	Connection between batteries	267-1011
45-2		LEAD WIRE: same as Ref. 45-1.	Connection between batteries	
46	3F3933-46A/B1 — —	CABLE, battery: four laced wires; 9 1/2" between ties; lugs on green and red wires.	Connection to batteries	457-1232
47	3F3933-46A/M	PLATE MOUNTING: polystyrene.	Mount socket and tuning capacitor	257-7600

MODEL: RADIO RECEIVER BC-1066-B

100-1	SOCKET: same as Ref. 28-1.	Hold tube JAN-957 (G band)		
100-2	SOCKET: same as Ref. 28-1.	Hold tube JAN-957 (I Band)		
101	CAPACITOR: same as Ref. 4.	G Band resonating circuit		
102-1	CAPACITOR: same as Ref. 9.	G Band resonating circuit		
102-2	CAPACITOR: same as Ref. 9.	I Band resonating circuit		
103-1	LOOP: same as Ref. 10.	G Band resonating circuit		
103-2	LOOP: same as Ref. 10.	I Band resonating circuit		
104-1	CAPACITOR: same as Ref. 11-1.	G Band detector grid coupling		
104-2	CAPACITOR: same as Ref. 11-1.	I Band filament r-f bypass		
104-3	CAPACITOR: same as Ref. 11-1.	I Band detector grid coupling		
104-4	CAPACITOR: same as Ref. 11-1.	G Band filament r-f bypass.		
105-1	COIL: same as Ref. 6-1.	G Band detector plate circuit r-f blocking		
105-2	COIL: same as Ref. 6-1.	I Band detector plate circuit r-f blocking		
105-3	COIL: same as Ref. 6-1.	I Band filament r-f blocking		
105-5	COIL: same as Ref. 6-1.	Output r-f filter		
106-1	RESISTOR: same as Ref. 7-1.	G Band detector plate load		
106-2	RESISTOR: same as Ref. 7-1.	I Band detector plate load		
107	RESISTOR: same as Ref. 24.	Bias voltage dropping		

TABLE OF CONTENTS—continued

MODEL: RADIO RECEIVER BC-1066-B

Reference Symbol	Army Stock No. Navy Stock No. British Ref. No.	Name of Part and Description	Function	Mfr. and Desig. or Standard Type	Cont. or Govt. Dwg. or Spec. No.
108		CAPACITOR: same as Ref. 8.	I Band resonating circuit		
109-2	3C318-6	COIL: R-F choke; 22 turns #30 wire on ceramic form 1 $\frac{3}{16}$ " long.	G Band filament r-f choke		
109-3		COIL: same as Ref. 109-2.	G Band filament r-f choke		
110		SWITCH: same as Ref. 12.	Band selector switch		
111-1		CAPACITOR: same as Ref. 13-1.	Detector amplifier coupling		
111-2		CAPACITOR: same as Ref. 13-1.	Amplifier coupling		
112		RESISTOR: same as Ref. 16.	First amplifier grid leak		
113		LAMP: same as Ref. 25.	Indicates when battery voltage is on		
114-A		CAPACITOR: same as Ref. 15-A.	B power supply filter		
114-B		CAPACITOR: same as Ref. 15-A.	Bias dropping resistor bypass		
115		CAPACITOR: same as Ref. 20.	Output voltage blocking		
116		JACK: same as Ref. 21.	Output connection		
117		RESISTOR: same as Ref. 17.	First amplifier plate load		
118		RESISTOR: same as Ref. 18.	Output amplifier plate load		
119		SWITCH: same as Ref. 14.	Power switch		
120		CAPACITOR: same as Ref. 19.	Output r-f filter bypass		
121		SOCKET: same as Ref. 36.	Hold tube JAN-ID8GT		
122		RESISTOR: same as Ref. 23.	Output grid leak		
123-1		BATTERY: same as Ref. 26-1.	Filament voltage		
123-2		BATTERY: same as Ref. 26-1.	Spare		
124-1		BATTERY: same as Ref. 27-1.	Plate voltage supply		
124-2		BATTERY: same as Ref. 27-1.	Plate voltage supply		
124-3		BATTERY: same as Ref. 27-1.	Plate voltage supply		
124-4		BATTERY: same as Ref. 27-1.	Spare		
125		DIAL CLAMP ASSEMBLY: same as Ref. 41.	Hold G Band dial in set position		
126-1	3RC21BE335K	RESISTOR: fixed; 3.3 megohms $\pm 10\%$; $\frac{1}{2}$ watt; carbon.	G Band grid leak		66-5333340
126-2		RESISTOR: same as Ref. 125-1.	I Band grid leak		

SECTION VII

DRAWINGS

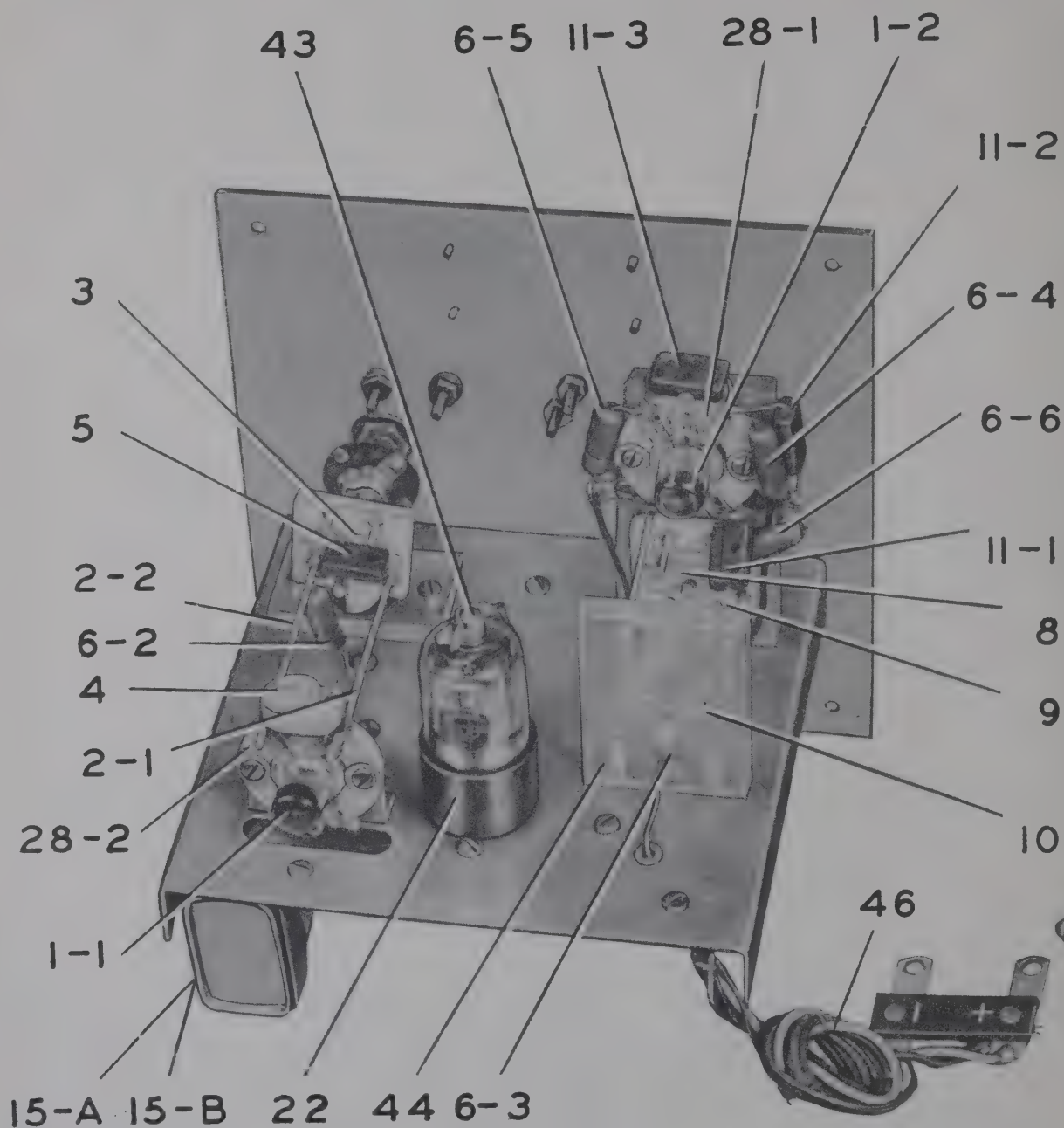


Figure 7-1. Radio Receiver BC-1066-A—Top Rear View, Identification of Parts

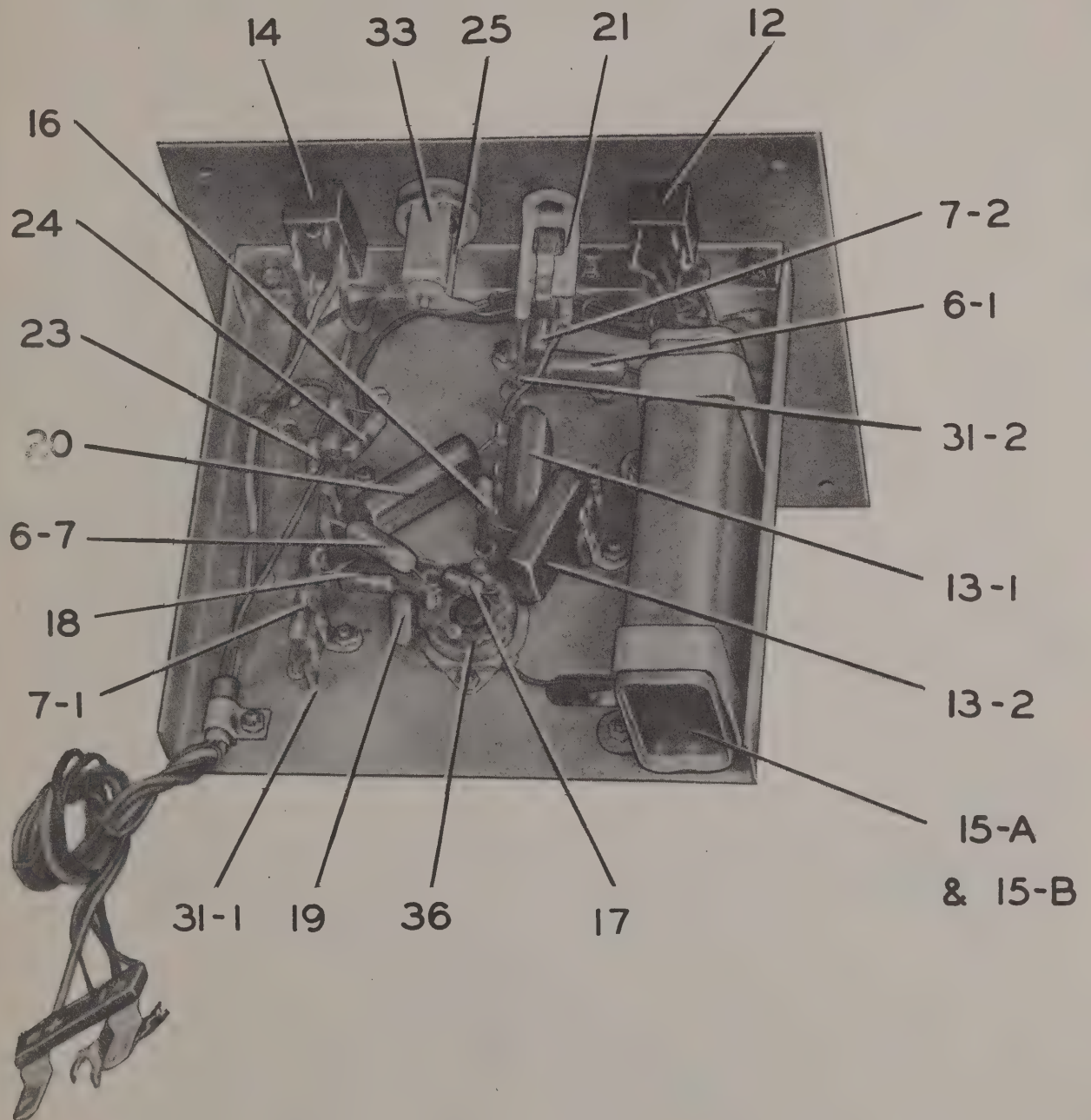


Figure 7-2. Radio Receiver BC-1066-A—Bottom Rear View, Identification of Parts

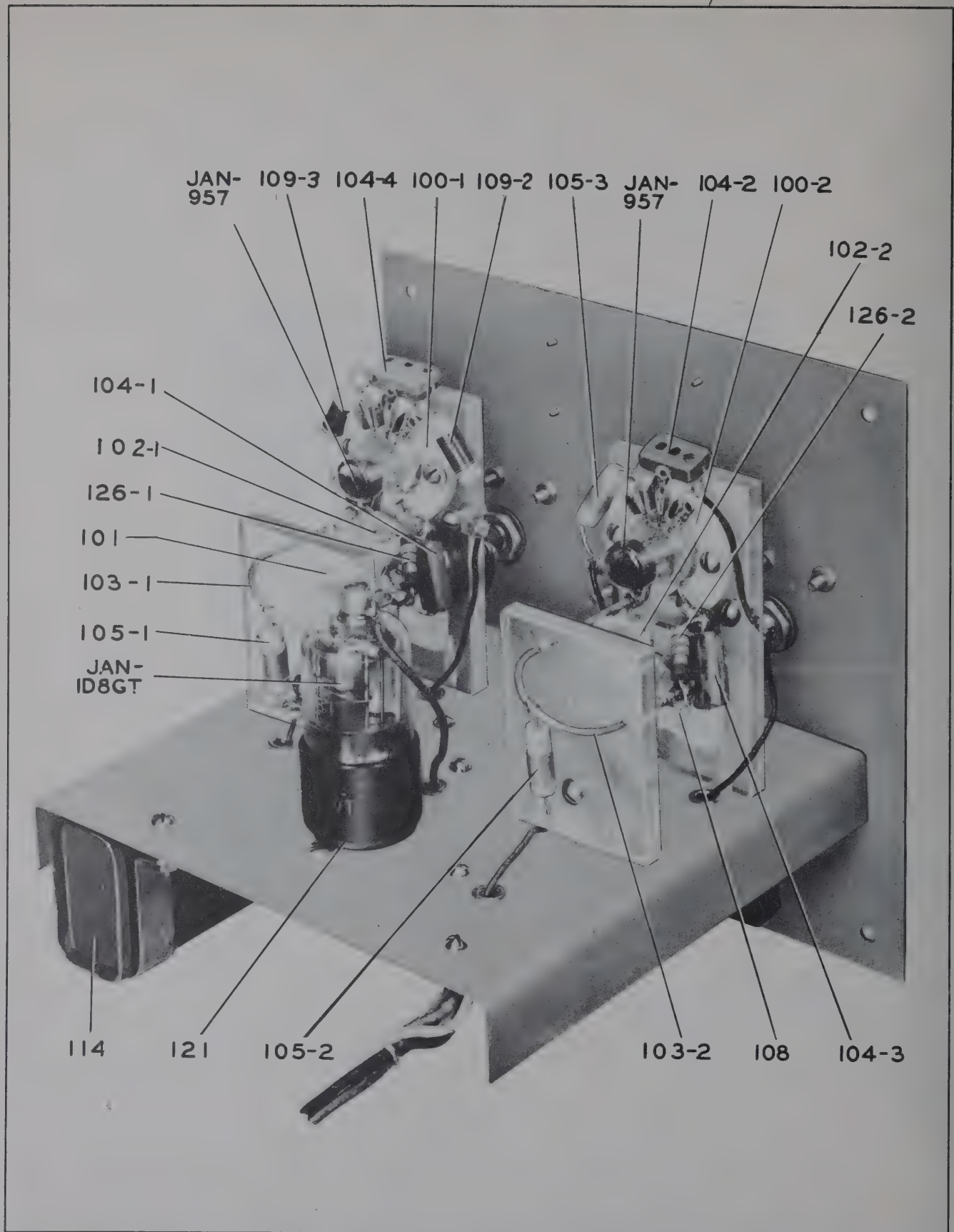


Figure 7-3. Radio Receiver BC-1066-B—Top Rear View, Identification of Parts

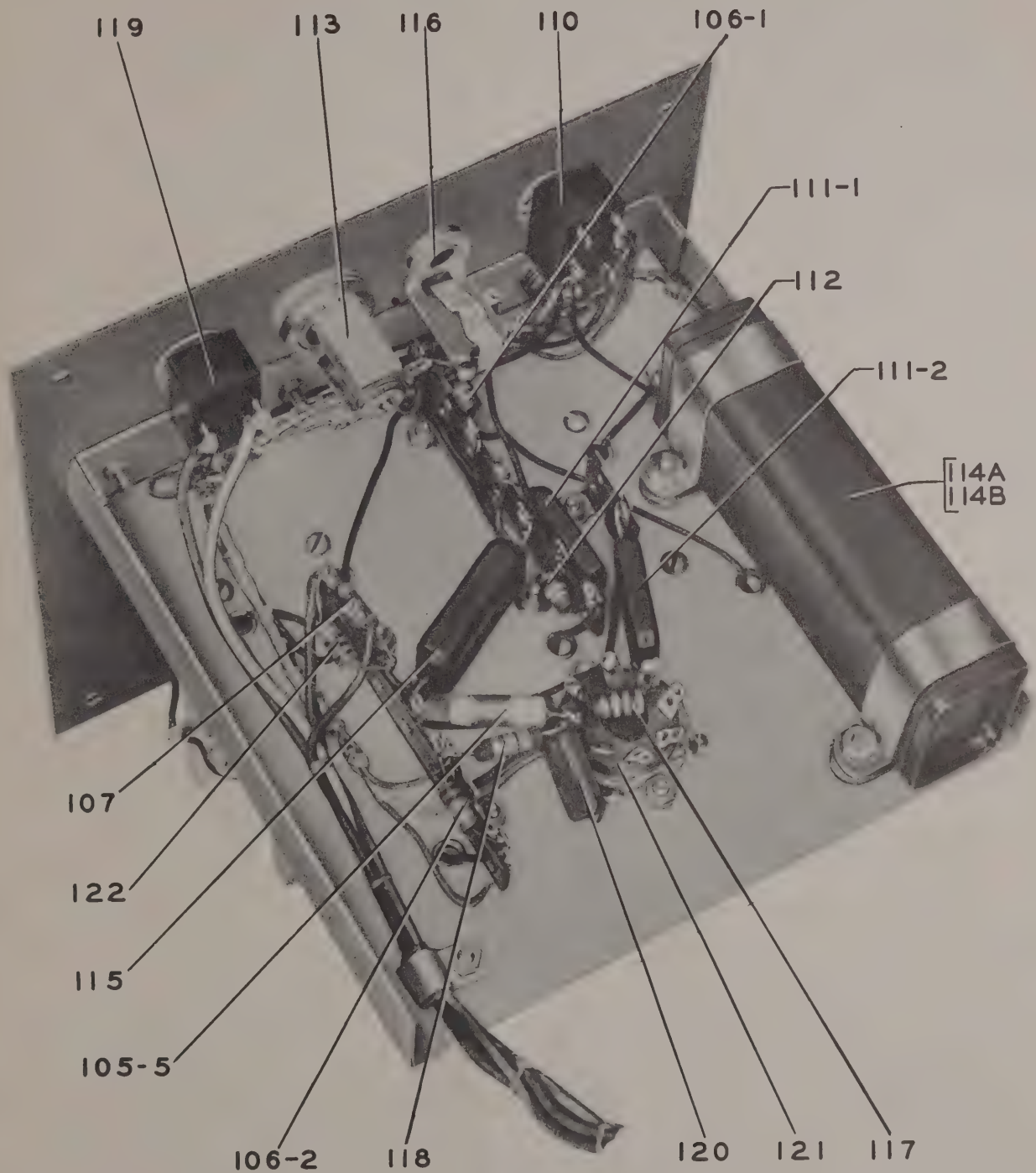
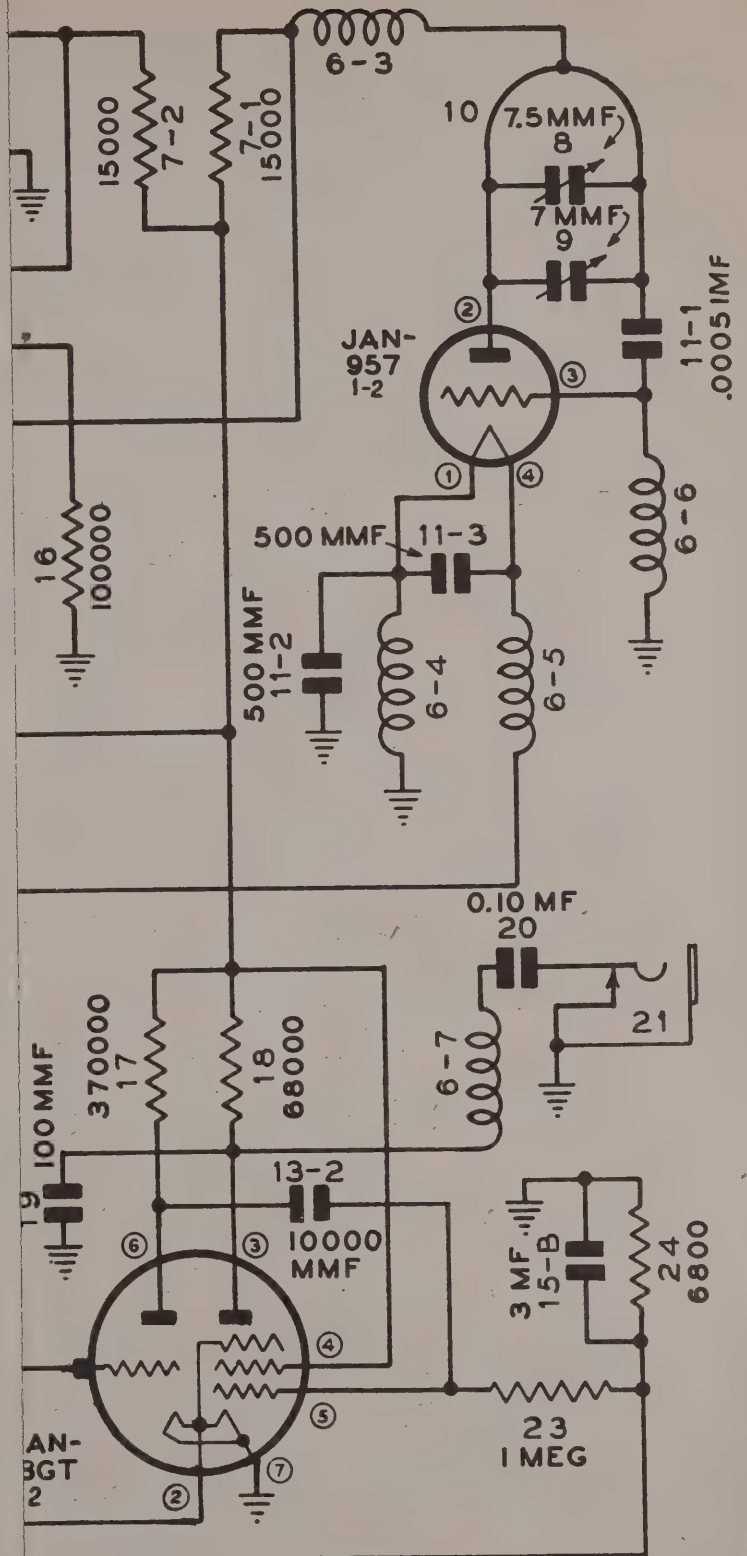


Figure 7-4. Radio Receiver BC-1066-B—Bottom Rear View, Identification of Parts

"I" BAND



UNLESS OTHERWISE INDICATED

ver BC-1066-A—Schematic Diagram

